UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/668,721	09/22/2003	Paul Haahr	025.0370.US.UTL	2439

44989 7590 01/26/2007

HARRITY SNYDER, LLP
11350 Random Hills Road
SUITE 600
FAIRFAX, VA 22030

EXAMINER	
PYO, MONICA M	

ART UNIT	PAPER NUMBER
2161	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/26/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/668,721	HAAHR ET AL.	
	Examiner	Art Unit	
	Monica M. Pyo	2161	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 October 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-78* is/are pending in the application.

4a) Of the above claim(s) *12-23* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-78* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This communication is in responsive to the Amendment filed 10/23/2006.

2. Claims 1-78 are currently pending in this application. Claims 1, 12, 24, 25, 46, 69, 73 and 78 are independent claims. Claims 1-78 are rejected.

Claim Rejections - 35 USC § 101

3. The amendment to claims has been received on 10/23/2006. The changes are accepted and therefore, the 35 U.S.C. 101 rejections made in a prior Office Action are withdrawn.

Specification

4. The specification amendment has been received on 10/23/2006. The changes are acknowledged and therefore, the Specification objections made in a prior Office Action are withdrawn.

Claim Objections

5. Claim 34 is objected to because of the following informalities:

Regarding claim 34, the term "commute" in line 2 should be changed to –compute--.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 1-78 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,026,388 issued to Liddy et al. (hereafter Liddy) in view of U.S. Patent Application Publication No. 2003/0014399 by Hansen et al. (hereafter Hansen).

Regarding Claims 1, 12 and 24, Liddy discloses a system for creating query refinement suggestions, comprising (col. 6, lns. 27-35):

A). A database configured to store content of a plurality of documents, as the document database storing documents (Liddy: col. 5, lns. 22-28);

C). document stored in the database, as the document database storing documents (Liddy: col. 5, lns. 22-28);

D) a matcher configured to match the at least one search document, as the matcher matches the document (Liddy: col. 7, lns. 17-25 and 44-51); and

E). a scorer configured to score the matched one or more search queries as a potential query refinement suggestion to be presented to the user, as the system scores and ranks (Liddy: col. 15, lns. 53-col. 16, lns. 6; col. 27, lns. 6-18).

Liddy does not explicitly disclose:

B). a log configured to store received search queries;

C). a server configured to receive a current search query from a user and identify at least one search based on the current search query;

D). to one or more of the stored search queries from the log, wherein the current search query differs from the matched one or more stored search queries;

However, Hansen discloses:

B). a log configured to store received search queries, as the proxy server stores the query information in the log (Hansen: pg. 5, [0045]);

C). a server configured to receive a current search query from a user and identify at least one search based on the current search query, as the system finds the related group with the user's search (Hansen: pg. 4, [0040]);

D). to one or more of the stored search queries from the log, wherein the current search query differs from the matched one or more stored search queries, as the terms being searched by users are continually changing (Hansen: pg. 4, [0040, 0044]);

It would have been obvious to a person with ordinary skill in the art at the time of invention to incorporate the method of organizing and storing records of database search activities of Hansen into the natural language information retrieval system of Liddy. Skilled artisan would have been motivated to incorporate the Hansen's teaching of log of pervious search queries in the Liddy's relevant document query system to utilize the log to track and obtain the user's searching behaviors (Hansen: [0023], lns. 10-18).

Regarding Claims 2 and 13, Liddy and Hansen disclose the system further comprising:

a document matcher configured to match the at least one search document to one or more stored documents associated with the matched one or more stored search queries (Liddy: col. 7, lns. 17-25 and 44-51; col. 12, lns. 1-7) and (Hansen: pg. 4, [0040]).

Regarding Claims 3 and 14, Liddy and Hansen disclose the system further comprising:

a weight associated with at least one of the stored search queries (Liddy: col. 12, lns. 15-20) and (Hansen: pg. 4, [0040]); and

a clusterer configured to form at least one cluster based on the at least one stored search query and the associated weight (Liddy: col. 7, lns. 44-51; col. 25, lns. 14-17) and (Hansen: pg. 4, [0040]).

Regarding Claims 4 and 15, Liddy and Hansen disclose the system further comprising:

a term vector used in cluster formation computed from terms extracted from the stored query and based on the weight for the stored query (Liddy: col. 7, lns. 44-51; col. 25, lns. 14-20).

Regarding Claims 5 and 16, Liddy and Hansen disclose the system further comprising:

a distance for the term vector (Liddy: col. 23, lns.20-28); and

the cluster configured to form the at least one cluster relative to the distance (Liddy: col. 23, lns. 23-28; col. 26, lns. 3-9).

Regarding Claims 6 and 17, Liddy and Hansen disclose the system further comprising:

a ranker configured to rank the at least one cluster relative to the at least one other cluster by evaluating a relevance score associated with each search document corresponding to each matched stored document (Liddy: col. 26, lns. 3-9 and 14-26).

Regarding Claims 7 and 18, Liddy and Hansen disclose the system further comprising:

a selector configured to select at least one ranked cluster as a potential refinement cluster (Liddy: col. 28, lns. 27-38).

Regarding Claims 8 and 19, Liddy and Hansen disclose the system further comprising:

a centroid computed as a weighted center of the at least one cluster (Liddy: col. 25, lns.30-34); and

a score computed for each stored query relative to the centroid (Liddy: col. 25, lns. 34-45; col. 26, lns. 14-26).

Regarding Claims 9 and 20, Liddy and Hansen disclose the system further comprising:

a selector configured to name the at least one cluster for at least one scored stored query (Liddy: col. 25, lns. 30-37).

Regarding Claims 10 and 21, Liddy and Hansen disclose the system further comprising:

a threshold applied to the scored one or more search queries (Liddy: col. 7, lns. 44-51; col. 15, lns. 11-17).

Regarding Claims 11 and 22, Liddy disclose the system further comprising:

a precomputation engine configured to associate associating one or more stored documents to the one or more stored search queries based on at least one of a chosen search document, a set of search documents, regenerated previous search documents, or inverted cached

document and query pairings (Liddy: col. 7, lns. 42-51 and 56-67; col. 12, lns. 2-5; col. 15, lns. 53-67) and (Hansen: pg. 4, [0040]).

Regarding Claims 23, 67 and 77, Liddy and Hansen disclose a computer-readable storage medium holding code for performing the method according to claim 12 (Liddy: col. 6, lns. 27-35).

Regarding Claims 25, 46 and 68, Liddy disclose a system for providing search query refinements, comprising:

A). an associator configured to associate, stored query and a stored document as a logical pairing and assign a weight to the logical pairing, as the system find and search for relevant stored documents and scores (Liddy: col. 7, lns. 44-54; col. 12, lns. 15-20) ;

B). a searcher configured to receive a search query and produce a set of search document, as the system receives a search query and produces (Liddy: col. 27, lns. 9-15);

C). a matcher configured to match at least one of the set of search documents to at least one stored document and retrieve the stored query and the assigned weight associated with the matching at least one stored document, as the matcher matches the document (Liddy: col. 7, lns. 17-25, 44-51; col. 12, lns. 15-20);

D). a clusterer configured to form at least one cluster based on the stored query and the assigned weight associated with the matching at least one stored document, as the system clusters (Liddy: col. 7, lns. 44-51; col. 25, lns. 14-17); and

E). a scorer configured to score scoring the stored query associated with the matching at least one stored document for the at least one cluster relative to at least one other cluster and suggest at least one scored search query as a set of query refinements to be presented to the user, as the system scores and ranks (Liddy: col. 7, lns. 59-64; col. 15, lns. 53-col. 16, lns. 6; col. 27, lns. 6-18).

Liddy does not explicitly disclose:

A). a previously received;

B). from a user, based on the received search query;

C). wherein the received search query and the stored query differ.

However, Hansen discloses:

A). a previously received, as a search record from the past (Hansen: pg. 4, [0040]);

B). from a user, based on the received search query, as the system finds the related group with the user's search (Hansen: pg. 4, [0040]);

C). wherein the received search query and the stored query differ, as the terms being search by users are continually changing (Hansen: pg. 4, [0040, 0044]);

It would have been obvious to a person with ordinary skill in the art at the time of invention to incorporate the method of organizing and storing records of database search activities of Hansen into the natural language information retrieval system of Liddy. Skilled artisan would have been motivated to incorporate the Hansen's teaching of log of pervious search queries in the Liddy's relevant document query system to utilize the log to track and obtain the user's searching behaviors (Hansen: [0023], lns. 10-18)

Regarding Claims 26 and 47, Liddy and Hansen disclose the system further comprising:

a selector configured to select one search document chosen from among the set of search documents responsive to the search query issuance as the at least one search document (Liddy: col. 7, lns. 20-25).

Regarding Claims 27 and 48, Liddy and Hansen disclose the system further comprising:

a selector configured to select the set of search documents as the at least one search document (Liddy: col. 7, lns. 20-25).

Regarding Claims 28 and 49, Liddy and Hansen disclose the system further comprising:

a query log configured to track previous search queries (Hansen: [0048]); and

a regenerator configured to regenerate a set of previous search documents produced by the previous search queries as the at least one such search document (Liddy: col. 3, lns. 7-15).

Regarding Claims 29 and 50, Liddy and Hansen disclose the system further comprising:

a cache configured to associate at least one cached document and one or more cached queries as a cached pairing (Liddy: col. 15, lns. 53-61); and

an inverter configured to invert each cached pairing to associate at least one cached query and one or more cached documents as the at least one search document (Liddy: col. 15, lns. 63-67; col. 16, lns. 9-18).

Regarding Claims 30 and 51, Liddy and Hansen disclose the system wherein relevancy to the stored query is estimated for the stored document as the weight assigned to the pairing (Liddy: col. 12, lns. 1-10 and 15-20).

Regarding Claims 31 and 52, Liddy and Hansen disclose the system wherein each assigned weight for a plurality of pairings corresponding to the stored query and the stored document is summed (Liddy: col. 12, lns. 7-12).

Regarding Claims 32 and 53, Liddy disclose the system wherein each stored query comprises one or more terms, further comprising:

a term vector comprising the terms in the stored query associated with the matching at least one stored document (Liddy: col. 7, lns. 44-51; col. 25, lns. 14-20);

a distance determined for the term vector (Liddy: col. 23, lns.20-28); and

the clusterer to form the at least one cluster relative to the distance (Liddy: col. 23, lns. 23-28; col. 26, lns. 3-9).

Regarding Claims 33 and 54, Liddy and Hansen disclose the system further comprising:

a normalizer configured to normalize the term vector (Liddy: col. 23, lns. 21-23).

Regarding Claims 34 and 55, as far as the claim is understood, Liddy and Hansen disclose the system further comprising:

an evaluator configured to commute a length of the term vector in multi-dimensional space with each dimension equaling a sum of the weights of the term in a set of associated stored queries (Liddy: col. 23, lns. 23-35).

Regarding Claims 35 and 56, Liddy and Hansen disclose the system further comprising:

a relevance score assigned to the at least one search document (Liddy: col. 12, lns. 1-10 and 15-20); and

a ranker configured to rank the at least one cluster relative to the at least one other cluster by the relevance score associated with the matching at least one search document and a number of the matching at least one search document (Liddy: col. 26, lns. 3-9 and 14-26).

Regarding Claims 36 and 57, Liddy and Hansen disclose the system further comprising:

a selector configured to select one of more of the ranked at least one cluster as potential refinement clusters based on the rankings (Liddy: col. 28, lns. 27-36).

Regarding Claims 37 and 58, Liddy and Hansen disclose the system further comprising:

a centroid computed as a weighted center for each potential refinement cluster (Liddy: col. 25, lns. 34-45); and

the scorer to score the stored query associated with the matching at least one stored document for the potential refinement cluster relative to the centroid (Liddy: col. 25, lns. 34-45; col. 26, lns. 14-26).

Regarding Claims 38 and 59, Liddy and Hansen disclose the system further comprising:

an evaluator configured to compute the centroid as a normalized sum of a product of the term vector for each stored query and the relevance score associated with the matching at least one search document (Liddy: col. 25, lns.30-34; col. 35, lns. 8-19).

Regarding Claims 39 and 60, Liddy and Hansen disclose the system further comprising:

a length of a distance vector determined from the term vector and the centroid (Liddy: col. 23, lns.20-28; col. 25, lns. 34-45); and

the scorer configured to compute the score for the scored query as a product of a number of stored documents with which the stored query is associated and the distance vector length (Liddy: col. 25, lns. 34-45; col. 26, lns. 14-26).

Regarding Claims 40 and 61, Liddy and Hansen disclose the system further comprising:

a selector configured to select the stored query associated with the matching at least one stored document relative to a threshold (Liddy: col. 7, lns. 44-51; col. 15, lns. 11-17).

Regarding Claims 41 and 62, Liddy disclose the system further comprising:

a sorter configured to sort the set of query refinements (col. 33, lns. 45-50 and 55-61).

Regarding Claims 42 and 63, Liddy and Hansen disclose the system further comprising:

a presenter configured to present the set of query refinements (Liddy: col. 7, lns. 57-64).

Regarding Claims 43 and 64, Liddy and Hansen disclose the system further comprising:

a set of supplemental query refinements negating each term in the set of query refinements not present in the search query and using the negated terms in combination with the search query as at least one supplemental query refinement (Liddy: col. 7, lns. 44-51 and 57-64).

Regarding Claims 44 and 65, Liddy and Hansen disclose the system further comprising:

an association database to maintain the pairings (Liddy: col. 7, lns. 14-25).

Regarding Claims 45 and 66, Liddy and Hansen disclose the system wherein at least one of each stored document and each search document is specified as at least one of a Uniform Resource Locator (URL), hyperlink, anchor, or document excerpt (Liddy: col. 7, lns. 17-25 and 44-51) and (Hansen: [0045], lns. 10-16).

Regarding Claims 69, 73 and 78, Liddy disclose a system for integrating query refinement candidates, comprising:

A). a matcher configured to match, to one or more stored documents associated with, a stored query having an associated weight, at least one search document retrieved responsive to and match at least one further search document retrieved responsive to a candidate query to the one or more stored documents, as the matcher matches the document (Liddy: col. 7, lns. 17-25 and 44-51; col. 12, lns. 15-20; col. 26, lns. 1-9);

B). a clusterer configured to form at least one cluster based on the stored query and weight associated with each stored document matched responsive to the query and

form at least one further cluster based on the stored query and weight associated with each stored document matched responsive to the candidate query, as the system clusters and scores (Liddy: col. 7, lns. 44-51; col. 25, lns. 14-17 and 24-29);

C). a combiner configured to combine the at least one cluster and the at least one further cluster, as the documents get combined with another cluster (Liddy: col. 25, lns. 54-66); and

D). a scorer configured to score the stored query for the combined cluster relative to at least one other cluster as a potential query refinement suggestion to be presented to the user, as the system scores and ranks (Liddy: Liddy: col. 7, lns. 59-64; col. 15, lns. 53-col. 16, lns. 6; col. 25, lns. 62-66).

Liddy does not explicitly disclose:

A). a previously received; a query from a user; wherein the query from the user and the store query differ

However, Hansen discloses:

A). a previously received; a query from a user; wherein the query from the user and the store query differ, as the terms being search by users are continually changing (Hansen: pg. 4, [0040, 0044]);

It would have been obvious to a person with ordinary skill in the art at the time of invention to incorporate the method of organizing and storing records of database search activities of Hansen into the natural language information retrieval system of Liddy. Skilled artisan would have been motivated to incorporate the Hansen's teaching of log of pervious

search queries in the Liddy's relevant document query system to utilize the log to track and obtain the user's searching behaviors (Hansen: [0023], lns. 10-18)

Regarding Claims 70 and 74, Liddy and Hansen disclose the system further comprising: a set of candidate query refinements comprising at least one candidate query (Liddy: col. 35, lns. 44-50).

Regarding Claims 71 and 75, Liddy and Hansen disclose the system further comprising: an evaluator configured to assign at least one candidate query to the at least one cluster (Liddy: col. 35, lns. 59-65; col. 37, lns. 16-19).

Regarding Claims 72 and 76, Liddy and Hansen disclose the system further comprising: a builder configured to create an orthogonal set of candidate query refinements comprising at least one unassigned query candidate (Liddy: col. 26, lns. 14-26).

Response to Arguments

8. Applicant's arguments with respect to claims 1-78 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Monica M. Pyo whose telephone number is 571-272-8192. The examiner can normally be reached on Mon-Fri 6:30 - 3:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeffrey Gaffin can be reached on 571-272-4146. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Monica M Pyo
Examiner
Art Unit 2161

mp
1/15/2007

JEFFREY GAFFIN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100